Fig.1

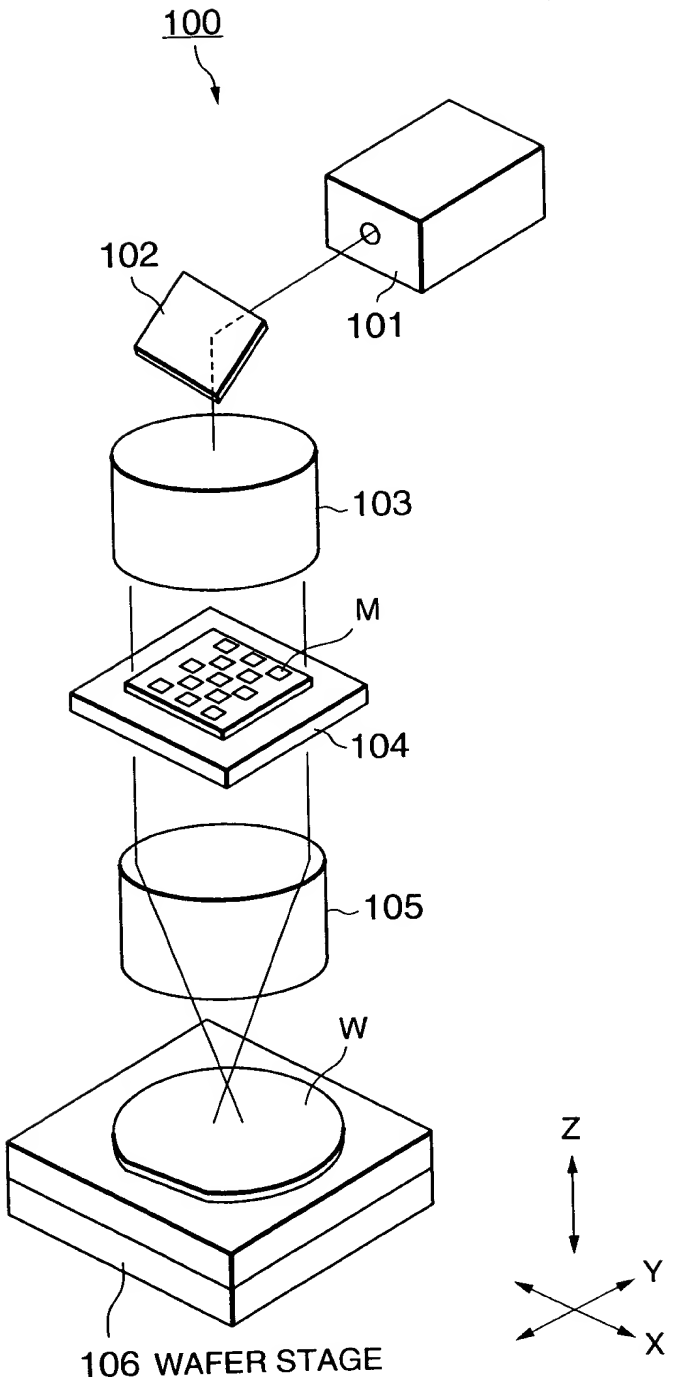

Fig.2

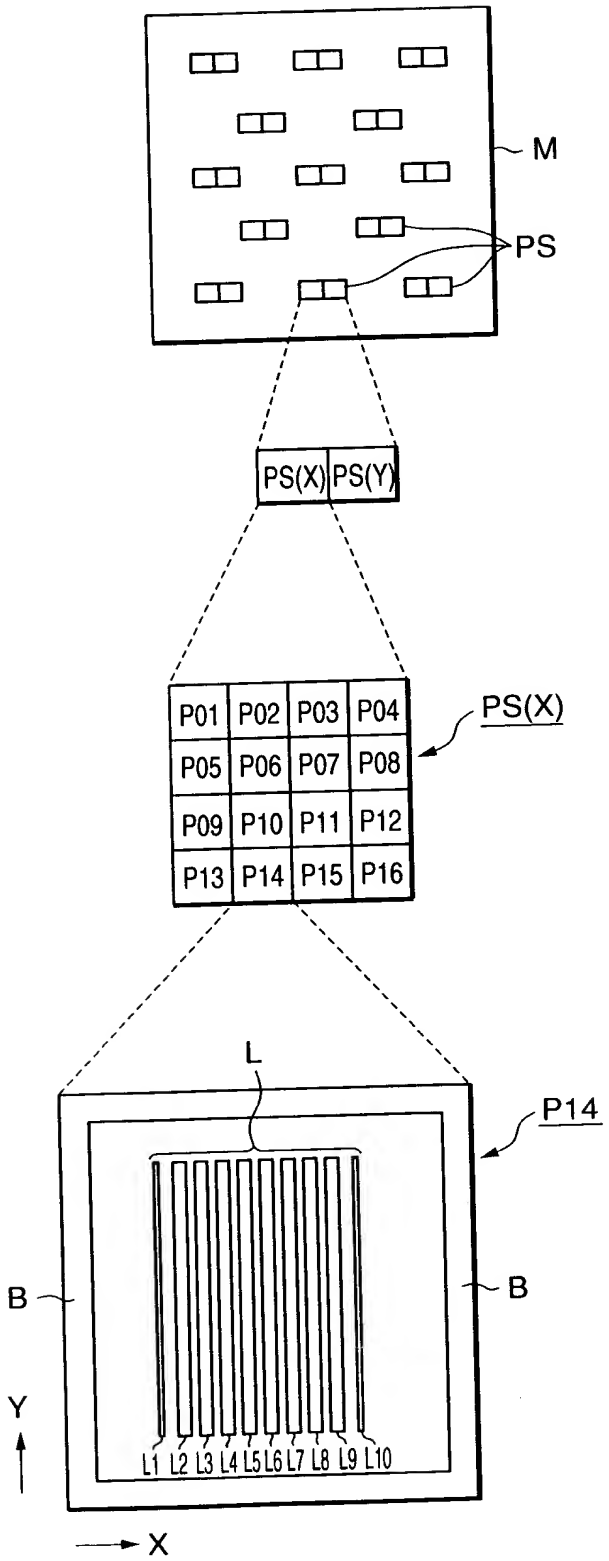
M
PS
PS(X)
PS(Y)
P01
P02
P03
P04
P05
P06
P07
P08
P09
P10
P11
P12
P13
P14
P15
P16
PS(X)
L
P14
B
B
Y
X
L1
L2
L3
L4
L5
L6
L7
L8
L9
L10

Fig.3(a)

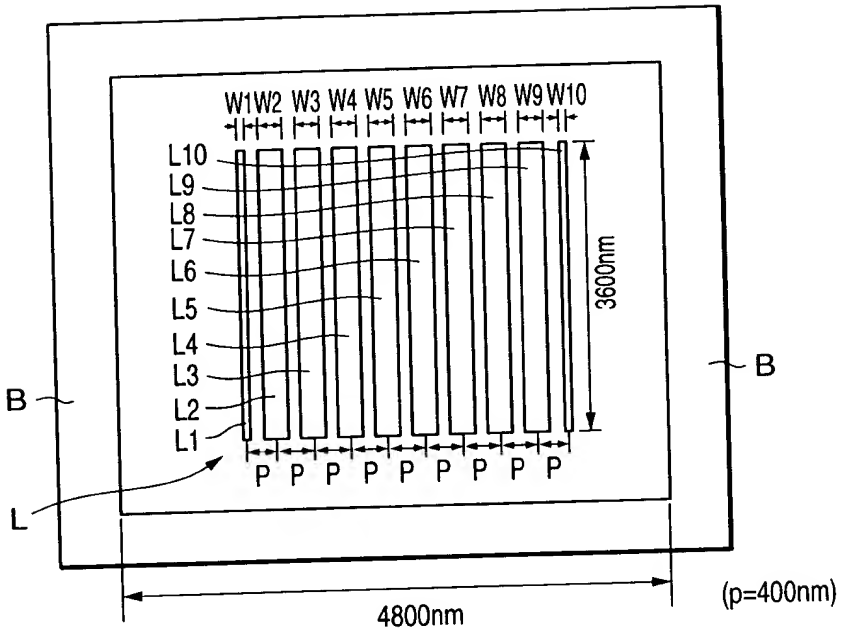
W1 W2 W3 W4 W5 W6 W7 W8 W9 W10
L10
L9
L8
L7
L6
L5
L4
L3
L2
L1
3600nm
P P P P P P P P P
B
B
L
4800nm
(p=400nm)

Fig.3(b)

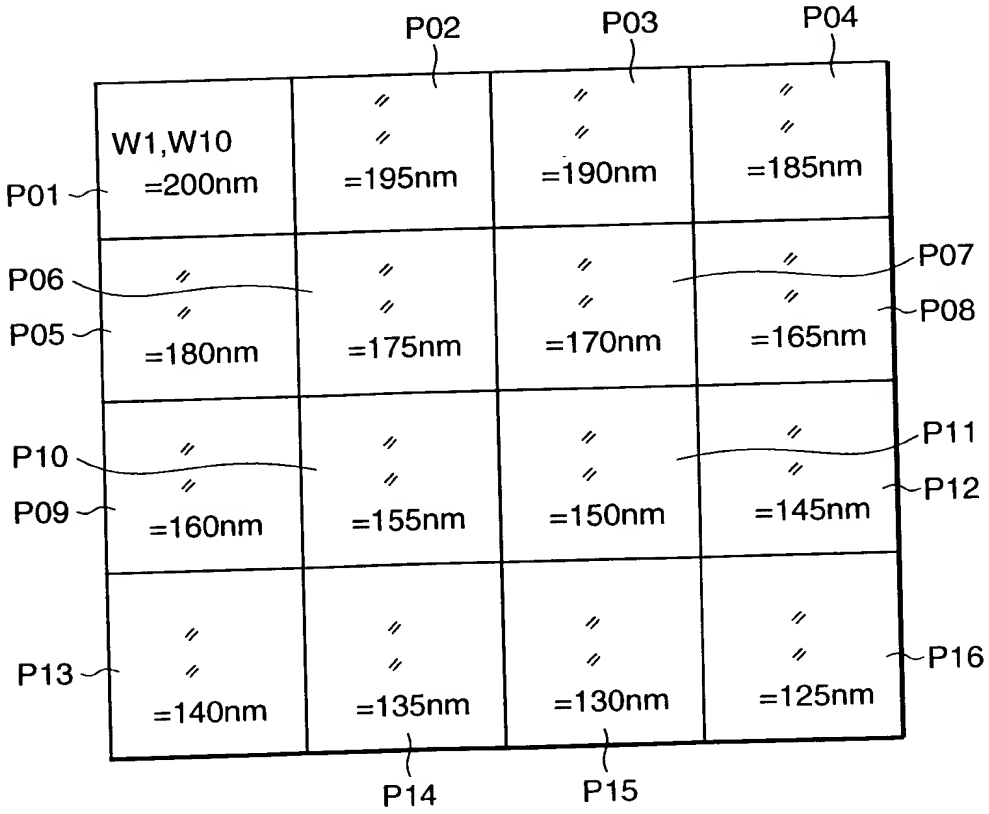
P02
P03
P04
W1,W10
=200nm
=195nm
=190nm
=185nm
P01
P06
P07
P05
P08
=180nm
=175nm
=170nm
=165nm
P10
P11
P09
P12
=160nm
=155nm
=150nm
=145nm
P13
P16
=140nm
=135nm
=130nm
=125nm
P14
P15

Fig.4

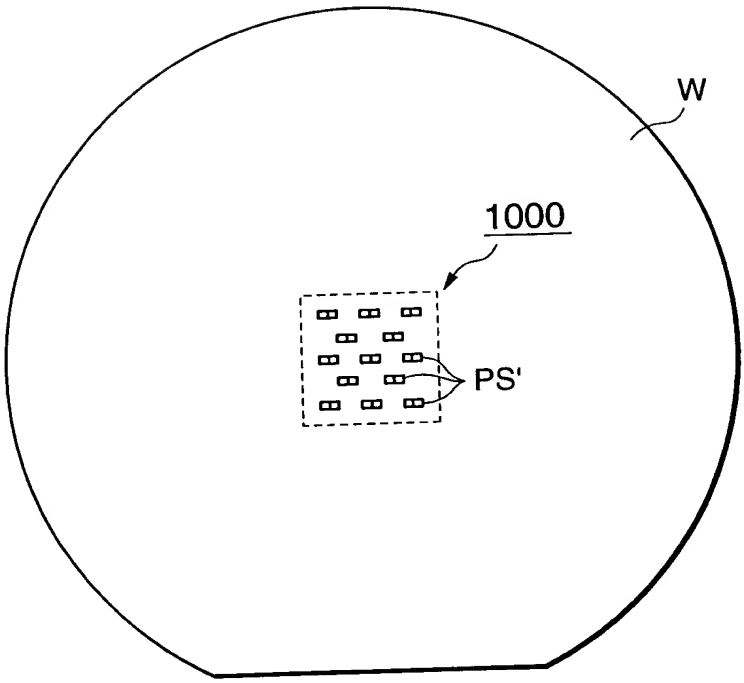

Fig.5(a)

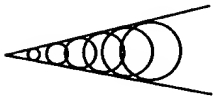

Fig.5(b)

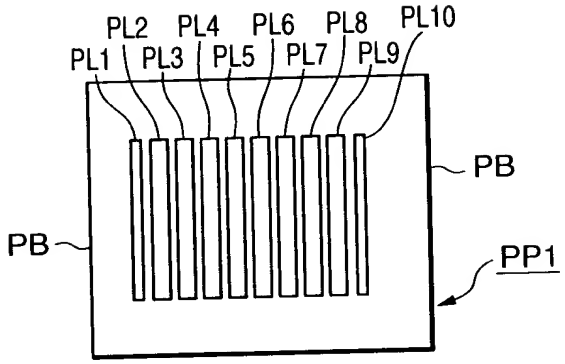

Fig.5(c)

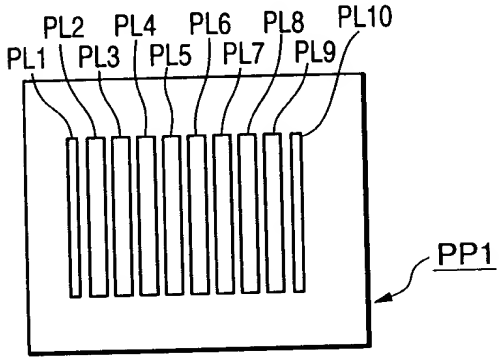

Fig.5(d)

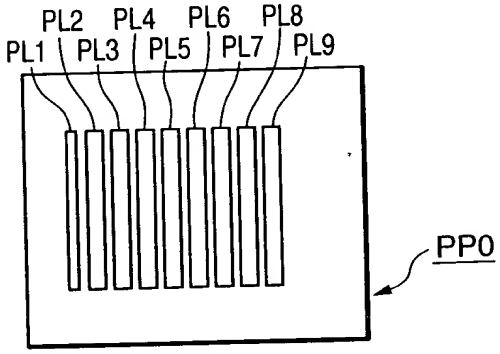

Fig.5(e)

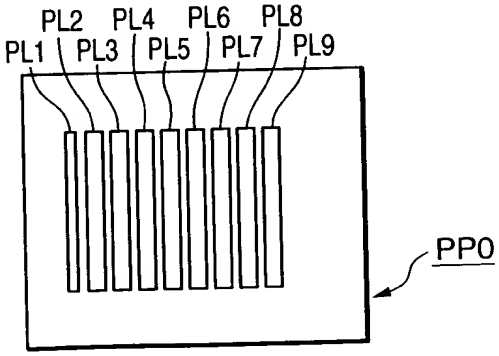

Fig.6(b)

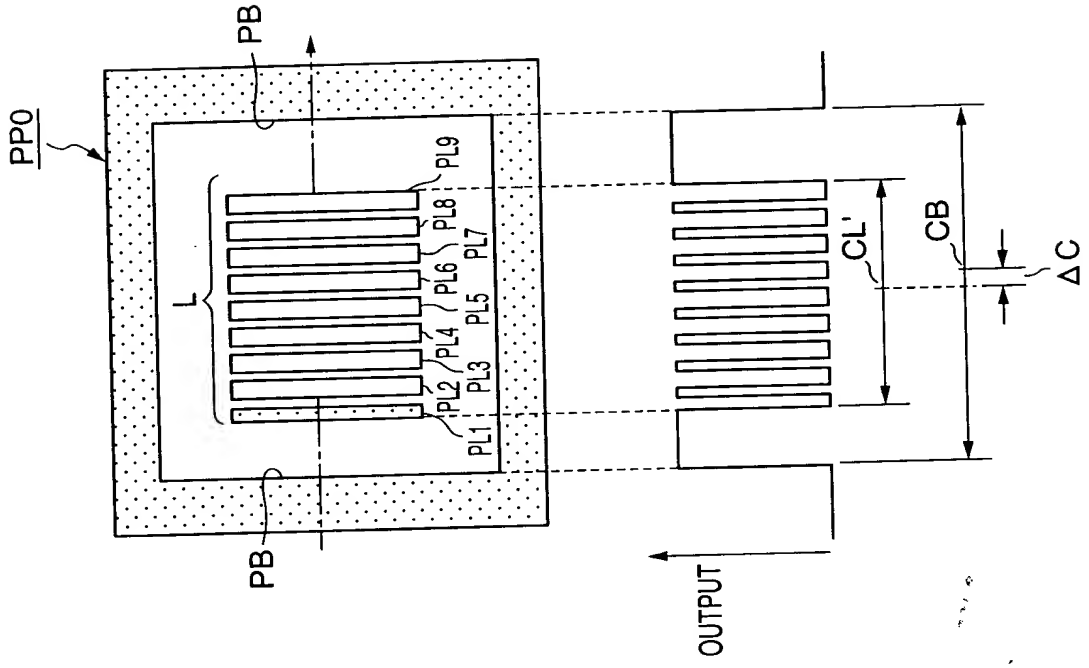
PP0
PB
PB
L
PL1
PL2
PL3
PL4
PL5
PL6
PL7
PL8
PL9
OUTPUT
CL'
CB
ΔC

Fig.6(a)

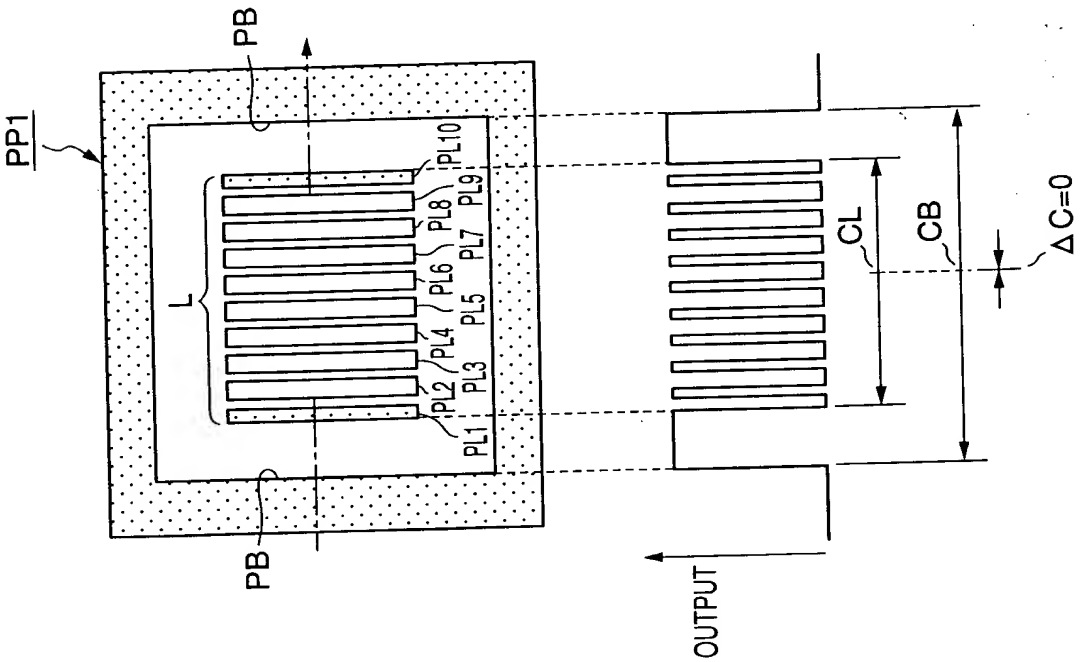
PP1
PB
PB
L
PL1
PL2
PL3
PL4
PL5
PL6
PL7
PL8
PL9
PL10
OUTPUT
CL
CB
ΔC=0

Fig.7

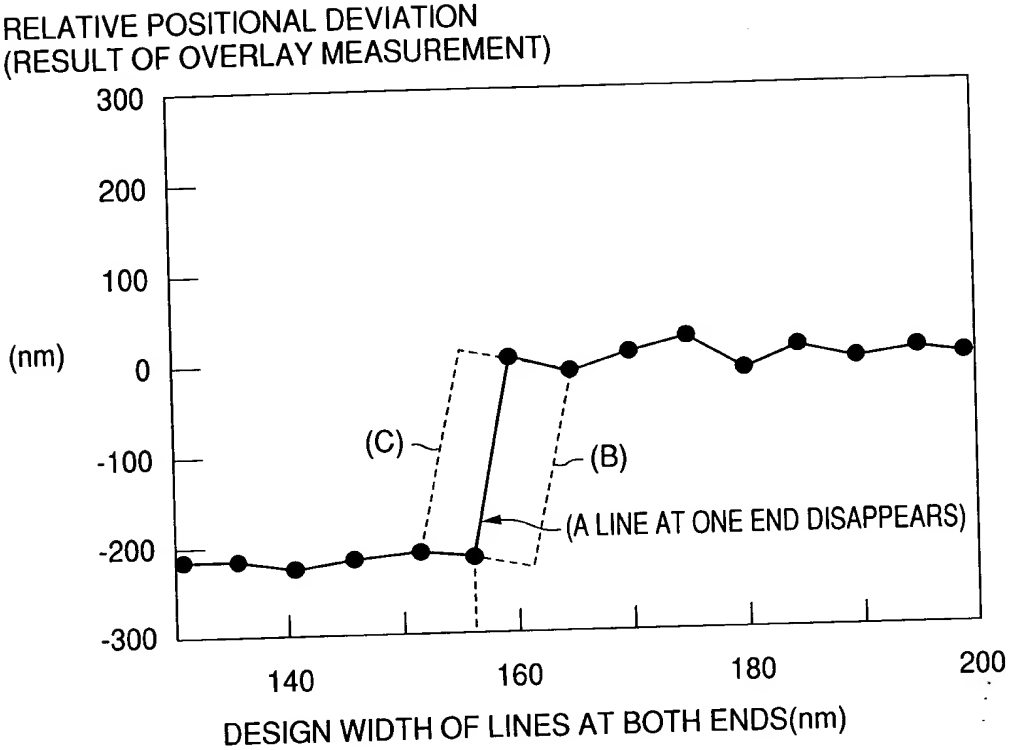
RELATIVE POSITIONAL DEVIATION
(RESULT OF OVERLAY MEASUREMENT)
300
200
100
0
-100
-200
-300
(nm)
(C)
(B)
(A LINE AT ONE END DISAPPEARS)
140
160
180
200
DESIGN WIDTH OF LINES AT BOTH ENDS(nm)

Fig.8

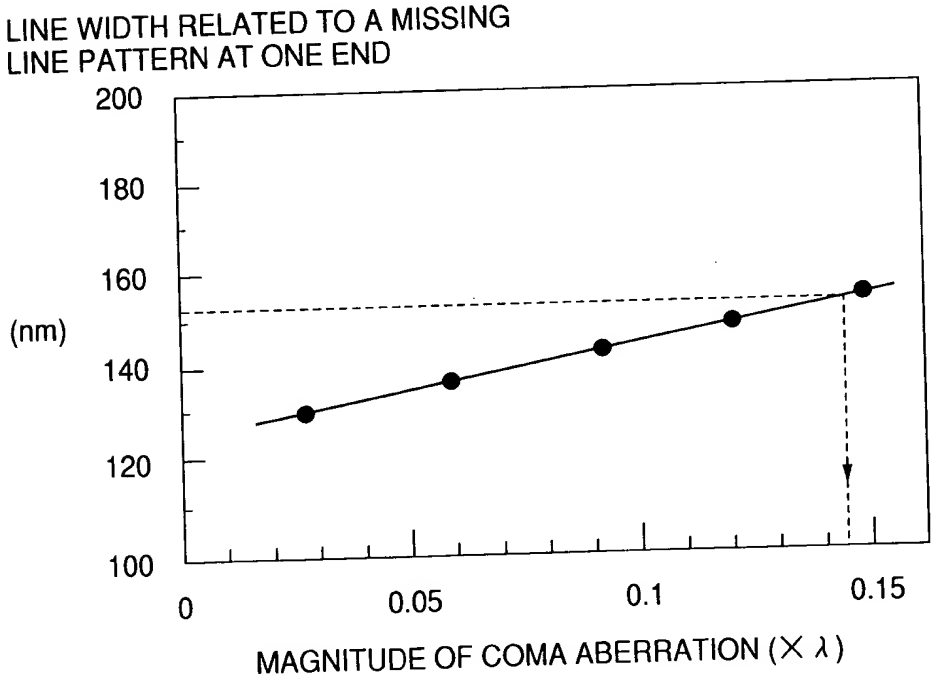
LINE WIDTH RELATED TO A MISSING
LINE PATTERN AT ONE END
200
180
160
140
120
100
(nm)
0
0.05
0.1
0.15
MAGNITUDE OF COMA ABERRATION (× λ)

Fig.9

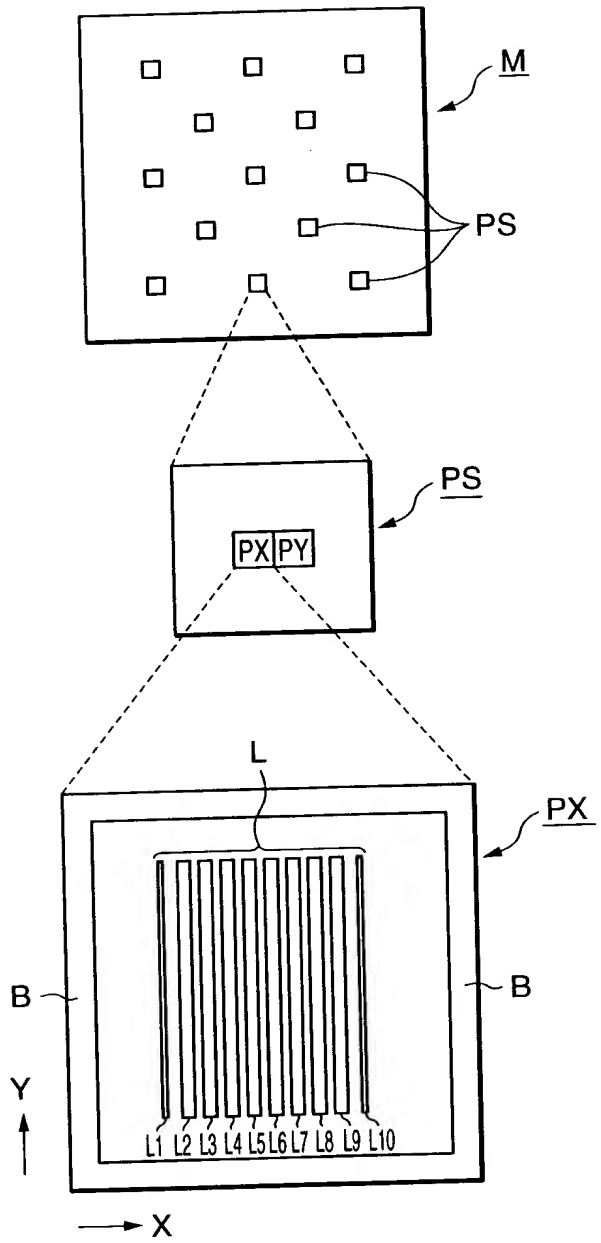

Fig.10(b)

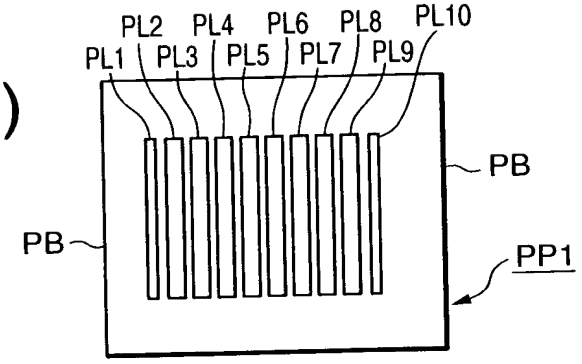

Fig.10(a)

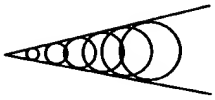

Fig.10(c)

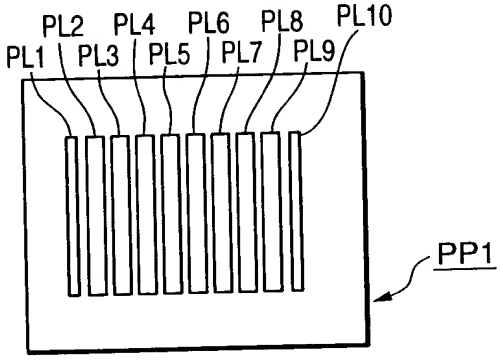

Fig.10(d)

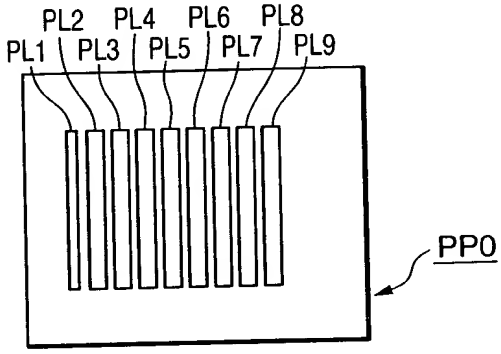

Fig.10(e)

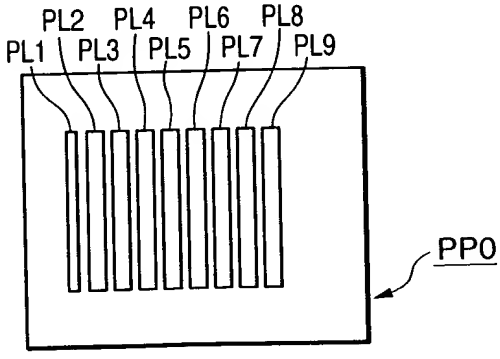

Fig.11

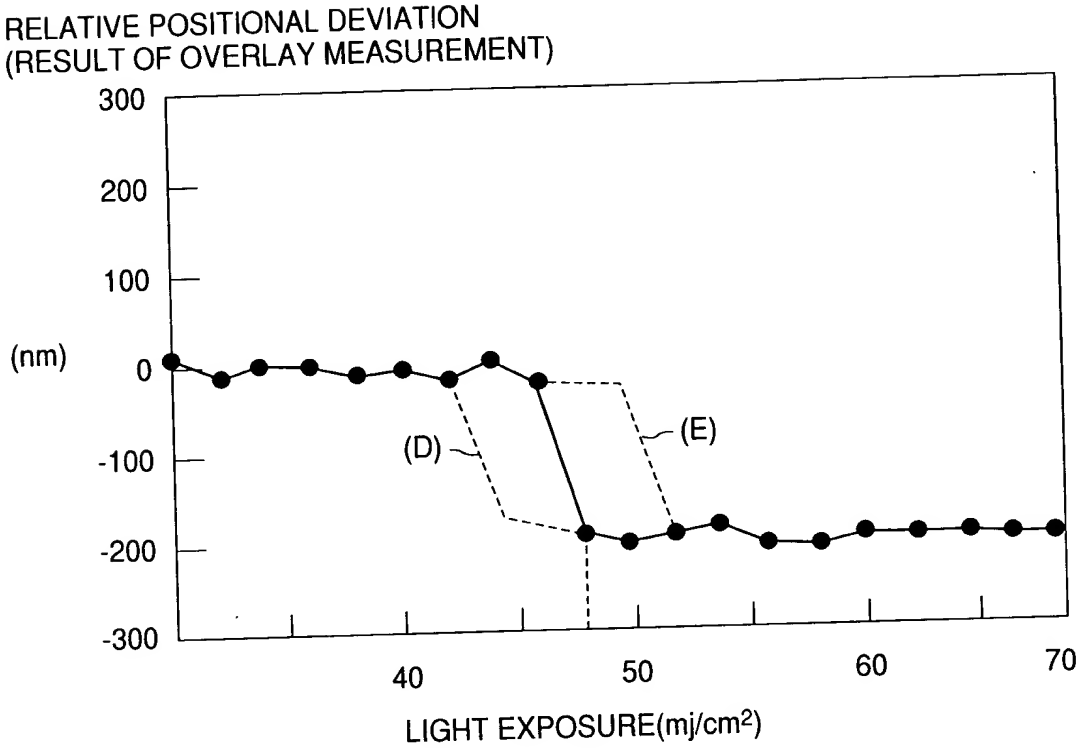
RELATIVE POSITIONAL DEVIATION
(RESULT OF OVERLAY MEASUREMENT)
300
200
100
(nm)
0
-100
-200
-300
(D)
(E)
40
50
60
70
LIGHT EXPOSURE(mj/cm2)

Fig.12

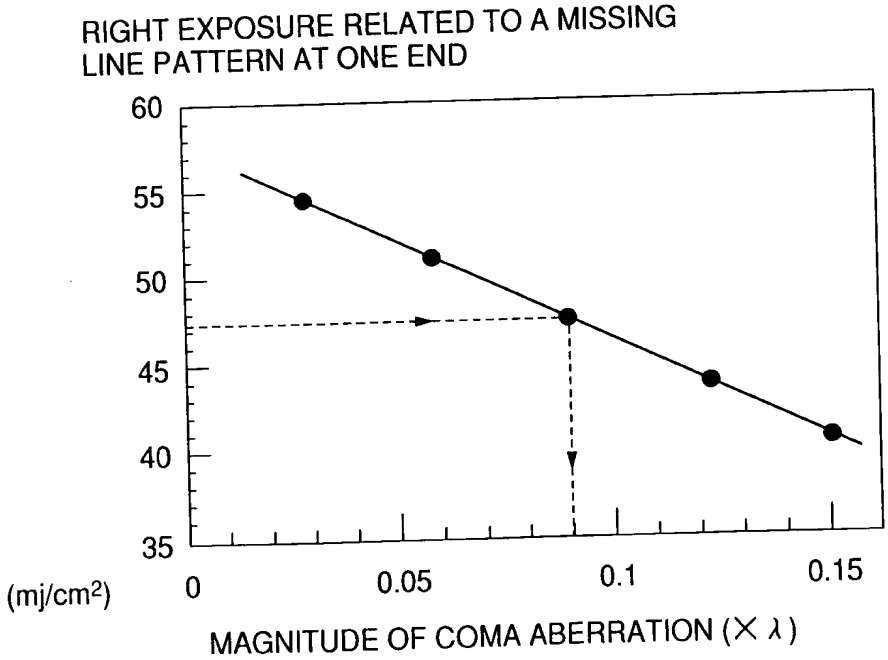
RIGHT EXPOSURE RELATED TO A MISSING
LINE PATTERN AT ONE END
60
55
50
45
40
35
(mj/cm2)
0
0.05
0.1
0.15
MAGNITUDE OF COMA ABERRATION (× λ)

Fig.13(a)

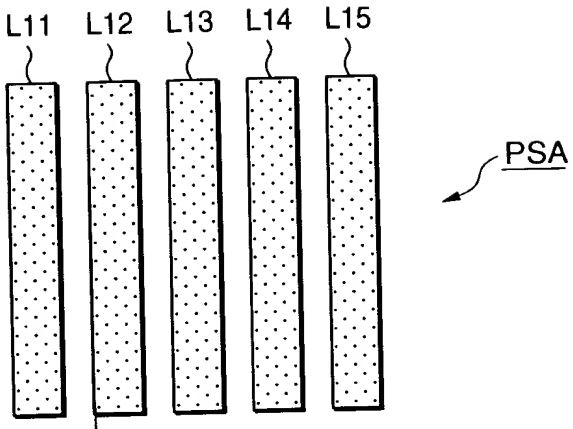

Fig.13(b)